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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,775	03/05/2002	Niro Inaba	0760-0303P	8818

2292 7590 03/02/2004

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EXAMINER	
RAO, MANJUNATH N	
ART UNIT	**PAPER NUMBER**
1652	

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/087,775	INABA ET AL.	
	Examiner	Art Unit	
	Manjunath N. Rao, Ph.D.	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-24* is/are pending in the application.

4a) Of the above claim(s) *9-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 9-24 are currently pending and are present for examination. Claims 16-24 are now under consideration. Claims 9-15 remain withdrawn from consideration as being drawn to non-elected invention.

Applicants' amendments and arguments filed on 12-10-03, have been fully considered and are deemed to be persuasive to overcome the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. Specifically as applicants have cancelled all original claims 1-8 in response to the previous Office action, all previous rejections have been rendered moot. However, new rejections are now in place.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16, 20 and claims 17-19, 21-24 all of which depend therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 16 and 20 recite the phrase "low to medium molecular weight". The metes and bounds of the above term in the context of the above claims are not clear to the Examiner. This is because it is not clear to the Examiner as to what specific range of molecular weights are considered as "low" and "medium" in the context of the above claim. A perusal of the specification did not yield a specific definition for the above phrase. Therefore said claims remain unclear.

Claims 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 recites a set of primers to be used for amplification of a polynucleotide encoding a virus protein and the desired protein. However, it is not clear to the examiner as to how those skilled in the art would choose the primer sets as applicants have not indicated as to which specific primer can be used for amplification of which specific protein rendering the claim indefinite.

Claims 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 recites the phrase "amplified by one or more primers". It is well known in the art that a set of two primers are invariably required for amplification of a polynucleotide. Similarly, it is also well known that amplification assay also requires a template polynucleotide without which amplification cannot proceed forward. Therefore, those skilled in the art would not known how to amplify a polynucleotide using a single primer and no template. Therefore the claim as written is indefinite. As applicants have not provided the template that should be used, Examiner also takes the position that the claim is unreasonably broad as it would read on the use of any template (Examiner does not however, base the rejection that the claim is unclear because of the breadth).

Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Claim 23 recites the phrase "active region" in line 3. The metes and bounds of the above phrase are not clear to the Examiner. It is not clear to the Examiner as to how those skilled in the art would select or identify the "active region" and furthermore what activities of the desired protein are encompassed in the above phrase.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 16, 18, 23-24 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of producing a fusion protein comprising the viral coat protein gp64 and a desired protein such as a glycosyltransferase, involving the steps of introducing into an insect cell, a recombinant vector encoding said fusion protein, wherein said vector comprises a fusion polynucleotide comprising a first polynucleotide encoding the baculovirus coat protein gp64 and a second polynucleotide encoding the desired protein, wherein said first polynucleotide is to the 5' side of the second polynucleotide, expressing said fusion polynucleotide in said insect cell to produce said fusion protein and recovering said fusion protein, does not reasonably provide enablement for such a method to produce a fusion protein comprising *any* or *all* types of baculovirus coat protein/s including fragments, variants, mutants and recombinants of the same. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required, are summarized in *In re Wands* (858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claim(s).

Claims 16, 18, 23-24 are so broad as to encompass a method of making a fusion protein by a phage display technique using any coat protein of any member of the group baculovirus. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the large number virus proteins and viral particles broadly encompassed by the claims. Claims as written involve the use of any or all viral coat proteins or any coat protein of any member of the baculovirus group. However, applicants have not shown that the proposed or claimed method works by using any coat protein of any member of baculovirus group. Furthermore, it is also well known in the art that only DNA encoding virus coat proteins are capable of taking on added sequences encoding the desired protein of only certain specific sizes can be produced by this type of "phage display method" and not all or any size/type of "desired protein" is suitable for the above method. While applicants have placed a limitation on the size of the fusion protein they have not indicated any such limitation on the "desired protein". Since all the above factors, i.e., size and type of desired protein, virus coat protein, and type of virus determine the specific type of protein and a specific method of making the protein, those skilled in the art requires a knowledge of and guidance with regard to which type of virus coat proteins are suitable for the above method and detailed knowledge of the ways in which the proteins'

structure relates to its function. However, in this case the disclosure is limited to the method of making a specific glycosyltransferase using the gp64 viral coat protein for making the fusion protein. It would require undue experimentation of the skilled artisan to make and use the full scope of the claimed method. The specification is limited to teaching the use of baculovirus gp64 and insect cell line sf6 as host cells for making a fusion glycosyltransferase. In view of the great breadth of the claim, amount of experimentation required to make the method work, the lack of guidance, working examples, and unpredictability of the art in predicting function from a primary structure, the claimed invention would require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the polypeptides encompassed by this claim.

While recombinant and mutagenesis techniques are known, it is not routine in the art to screen for multiple substitutions or multiple modifications, as encompassed by the instant claims, and the positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions.

The specification does not support the broad scope of the claims which encompass all or any type of viral coat protein and viral particles because the specification does not establish: (A) that all or any viral particles can be used for the above method, and (B) that all or any viral coat protein can be used for making the fusion protein.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including all or any viral proteins and baculovirus virus particles. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of the above method having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claims 20-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of producing a fusion protein comprising the viral *coat protein* gp64 (encoded by a polynucleotide prepared specifically by using the primers with SEQ ID NO:5 (forward primer) and SEQ ID NO:6 (reverse primer) and a cDNA library of a baculovirus exhibiting gp64 in its coat), and a desired protein such as a glycosyltransferase, involving the steps of introducing into an insect cell, a recombinant vector encoding said fusion protein, wherein said vector comprises a fusion polynucleotide comprising a first polynucleotide encoding the baculovirus coat protein gp64 and a second polynucleotide encoding the desired protein, wherein said first polynucleotide is to the 5' side of the second polynucleotide, expressing said fusion polynucleotide in said insect cell to produce said fusion protein and recovering said fusion protein, does not reasonably provide enablement for such a method to produce a fusion protein involving the steps of introducing into an insect cell, a recombinant vector encoding said fusion protein, wherein said vector comprises a fusion polynucleotide

comprising a first polynucleotide encoding any protein constituting any or all virus particles or any protein (even non-viral proteins as applicants have not provided specific template that can be used for amplification) and a second polynucleotide encoding the desired protein (amplified by using a pair of primers provided), wherein said first polynucleotide is to the 5' side of the second polynucleotide, expressing said fusion polynucleotide in said insect cell to produce said fusion protein and recovering said fusion protein. Furthermore, applicants do not provide a template against which the polynucleotide can be amplified using specific pair of primers provided. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required, are summarized in *In re Wands* (858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claim(s).

Claims 20-22 are so broad as to encompass a method of making a fusion protein by a phage display technique using any viral protein. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the large number proteins broadly encompassed by the claims. Claims as written involve the use of any proteins apart from the desired protein to make the fusion protein. However, applicants have not shown that the proposed or claimed method works by using any protein in an insect cell.

Furthermore, it is also well known in the art that only DNA encoding virus coat proteins are capable of taking on added sequences encoding the desired protein of only certain specific sizes can be produced by this type of "phage display method" and not all or any size/type of "desired protein" is suitable for the above method. While applicants have placed a limitation on the size of the fusion protein they have not indicated any such limitation on the "desired protein". Since all the above factors, i.e., size and type of desired protein, and the virus constituting protein determine the specific type of protein and a specific method of making the protein, those skilled in the art would require a knowledge of and guidance with regard to which types of viral proteins are suitable for the above method and detailed knowledge of the ways in which the proteins' structure relates to its function. However, in this case the disclosure is limited to the method of making a specific glycosyltransferase using the gp64 viral coat protein for making the fusion protein. It would require undue experimentation of the skilled artisan to make and use the full scope of the claimed method. The specification is limited to teaching the use of baculovirus gp64 and insect cell line sf6 as host cells for making a fusion glycosyltransferase. In view of the great breadth of the claim, amount of experimentation required to make the method work, the lack of guidance, working examples, and unpredictability of the art in predicting function from a primary structure, the claimed invention would require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the polypeptides encompassed by this claim.

While recombinant and mutagenesis techniques are known, it is not routine in the art to screen for multiple substitutions or multiple modifications, as encompassed by the instant claims, and the positions within a protein's sequence where amino acid modifications can be made with a

reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions.

The specification does not support the broad scope of the claims which encompass all or any type of viral coat protein and viral particles because the specification does not establish: (A) that all or any protein constituting any viral particles can be used for the above method.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including all or any viral proteins and baculovirus virus particles. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of the above method having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claims 16, 18, 23-24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 16, 18, 23-24 are directed to method of making polypeptides using a phage display technique. Claims 16, 18 are rejected under this section of 35 USC 112 because the claims are directed to a method of making a genus of fusion polypeptides comprising a virus

coat protein. No description has been provided of the polypeptide sequence comprising the virus coat protein as encompassed by the claim. No information, has been provided by applicants which would indicate that they had possession of the claimed genus of virus coat polypeptides to make the fusion protein. The specification does not contain any disclosure of the structure of all the viral coat polypeptide sequences within the scope of the claimed genus. The genus of polypeptides claimed is a large variable genus including peptides which can have a wide variety of structures. Therefore many structurally unrelated polypeptides are encompassed within the scope of these claims. The specification discloses only a partial structure (i.e., two primers that could be used to amplify the polynucleotide encoding the coat polypeptide) of a single species of the claimed genus which is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 20, 22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 20, 22 are directed to method of making polypeptides using a phage display technique. Claims 20, 22 are rejected under this section of 35 USC 112 because the claims are directed to a method of making a genus of fusion polypeptides comprising any virus protein. No description has been provided of the polypeptide sequence which is the virus protein as

encompassed by the claim. No information, has been provided by applicants which would indicate that they had possession of the claimed genus of virus polypeptides to make the fusion protein. The specification does not contain any disclosure of the structure/function of the viral polypeptide sequences within the scope of the claimed genus. The genus of polypeptides claimed is a large variable genus including peptides which can have a wide variety of structures and functions. Therefore many structurally and functionally unrelated polypeptides are encompassed within the scope of these claims. The specification discloses only a partial structure and function (i.e., two primers that could be used to amplify the polynucleotide encoding the virus coat polypeptide) of a single species of the claimed genus which is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16-17, 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Boublik et al. (Biotechnology, 1995, Vol. 13:1079-1084. This rejection is based upon the public availability of a printed publication more than one year before the filing date of the instant application. Claims

16-17, 23-24 of the instant application is drawn to a method of producing a fusion protein of comprising the steps of introducing into a host cell such as an insect cell, a recombinant vector comprising a fusion polynucleotide encoding said fusion protein, wherein said fusion polynucleotide comprises a first polynucleotide encoding a viral coat protein of a baculovirus such as gp64 and a second polynucleotide encoding a desired protein wherein the fist polynucleotide is to the 5' side of said second polynucleotide encoding the desired protein, wherein expression of the fusion protein in said host cell and wherein the desired protein thus produced is purified. Boublik et al. disclose an identical method wherein sf9 insect cell line is transformed with a vector comprising a fusion polynucleotide encoding a fusion protein wherein said fusion polynucleotide comprises a first polynucleotide encoding a viral coat protein of a baculovirus such as gp64 and a second polynucleotide encoding a desired protein, i.e., GST protein and wherein the fist polynucleotide is to the 5' side of said second polynucleotide encoding the desired protein, (see figure 1 part B, specifically pAcGST2RGPΔC-1 as well as figure 6) wherein fusion protein is expressed in said host cell and wherein the desired protein thus produced is purified. Thus Boublik et al. anticipate claims 16-17, 23-24 as written.

In response to the previous Office action, applicant has cancelled the original claim and introduced a set of new claims. Applicant submits that none of the previous references used in the above rejection anticipates new claims as none of the reference teaches a gene encoding the desired protein that is downstream of a coat protein. Applicant claims the novelty and several advantages of the above invention in the placement of the desired protein towards the C-terminal side of the gp64 coat protein. However, examiner respectfully disagrees. This is

because, contrary to the applicant's argument Boublik et al. disclose an identical invention as explained above. Therefore the above rejection is maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 18-19, 20, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boublik et al. as applied to claims 16-17, 23-24 above, and further in view of the common knowledge in the art of protein biochemistry and molecular biology. Claims 18-19, 20, 21-22 are drawn to a method of making a glycosyltransferase using the phage display technique of claims 16-17, 23-24 and further purifying the desired protein by cleaving the protein from the viral coat protein or virus particle.

The references of Boublik et al. have already been discussed above. The above reference actually teaches and suggests that any type of desired protein can be produced using the baculovirus system. In that context, one of the reference also teaches that a commercial kit is available for producing recombinant proteins. Therefore, using the teachings and suggestions of the above reference it would have been obvious to those skilled in the art to make any protein or specifically any glycosyltransferase using that above method. Polynucleotides encoding many glycosyltransferase are available in the art as is the polynucleotide sequence of gp64. Using such polynucleotides and the methods taught by the above three references it would have been

obvious to those skilled in the art to make a fusion protein comprising gp64 and a glycosyltransferase. Similarly using the above teaching and the general teaching of protease cleavage sites, it would have been obvious to those skilled in the art to introduce a protease cleavage site in the fusion protein and a tag such as GST of His tag such that the protein can be easily cleaved from the viral particle followed by affinity purification. One of ordinary skill in the art would have been motivated to do so as the method offers several advantages such as bulk culture technique for large scale production, easy purification of the recombinant protein etc. One of ordinary skill in the art would have a reasonable expectation of success since the above reference provide all the required steps for the method and polynucleotides encoding glycosyltransferase are available in the art.

Therefore the above invention would have been *prima facie* obvious to those skilled in the art.

In response to the previous Office action, applicant continues the same type of argument as that was presented against the anticipation rejection. In addition, applicant argues that Examiner has not shown a prima facie case as non of the reference teach a gene encoding protein down stream of the gp64 protein, which generates a protein that is in its natural or active form and that instant invention possesses unexpectedly superior effects that could never be surmised by the teachings of the cited references. Examiner respectfully disagrees with such an argument. This is because contrary to applicant's argument, Boublik et al. do teach such a fusion protein. The teachings of Boublik et al. would have definitely provided enough motivation for those skilled in the art to place a glycosyltransferase or any other protein in place of GST as taught by Boublik et al.

Therefore, contrary to applicant's argument above claims would have been prima facie obvious to those of ordinary skill in the art.

Conclusion

None of the claims are allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manjunath N. Rao, Ph.D. whose telephone number is 571-272-0939. The examiner can normally be reached on 6.30 a.m. to 3.00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0939. The fax phone

numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1234.

Manjunath N. Rao
February 25, 2004